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AN ANALYSIS OF THE LITERATURE IN THE FIELD OF DRIVER EDUCATION AND DRIVER TRAINING

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Maynard C. Robinson

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AN ANALYSIS OF THE LITERATURE IN THE FIELD OF DRIVER EDUCATION AND DRIVER TRAINING

Submitted by

Maynard Cheney Robinson

(B.S., Middlebury, 1931)

In partial fulfillment of requirements for

the degree of Master of Education

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School of Education
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31510

First Reader: Roy O. Billett, Professor of Education

Second Reader: Frank L. Steeves, Instructor in Education

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CHAPTER I

PURPOSE AND NATURE OF THE STUDY

Delineation of the Problem

Purpose.-- The purpose of this study is to review and analyze the literature in the field of driver education and driver training in order to make accessible under one cover the most important and worthwhile materials having direct bearing on the subject.

Need for the study.-- The school administrator considering the inclusion of driver education or driver training or both in the program of studies of his school will need to know the background of such education and training, the experience of other schools offering driver education or driver training courses, the materials and methods used and which have proved most successful, the qualifications needed in instructors, the cost of the program, the problems of administration, the results to be expected, and methods of evaluating the program.

Primary objectives of driver education and driver training.-- For the past several years secondary schools have been adding to their programs of studies courses of instruction in the use of the automobile. The primary objectives of these courses have been to instruct pupils

in correct driving methods from the standpoints of safety, courtesy, and efficiency, and to enable them to acquire the skills necessary to operate motor vehicles safely, courteously, and efficiently.

The two types of instruction.-- To reach these objectives two types of courses have been used. The first course, commonly called Driver Education, attempts to teach pupils the fundamental scientific and mechanical principles of the automobile and the theory of operation. The second course, usually known as Driver Training, is a planned program learning to drive an automobile through actual practice under the supervision of a trained instructor.

Attitude of the secondary school toward the automobile.-- Prior to 1936 the automobile received slight attention from the secondary school. It was an object of passing interest in the science curriculum, receiving some study as an example of the practical application of scientific principles. In the social studies field, particularly in civics and economics classes, it received attention in connection with law, law enforcement, transportation and communication, highway development, taxes and taxation, and its effect on the social and economic life of the people of our country.

Teaching pupils how to operate an automobile was considered outside the province of the secondary school until

recent years, and most adolescents learned to drive a car by means of the trial and error method or under the hit and miss instruction of a parent or friend. In the larger metropolitan centers some formal driver training has been available through the medium of commercial Learn-to-Drive schools, but the instruction often has been rudimentary at most and not always good even to the extent of its teaching.

Result of lack of knowledge and training.-- The result of this lack of sound instruction in the operation of motor vehicles has been millions of people lacking knowledge of the machine they are operating and unskilled in its use driving on roads most of which neither were designed nor have been remodeled to care for the type or quantity of traffic they are carrying. These conditions have brought about accidents resulting in property damage and physical injury or death to the occupants of cars and others using the streets and highways.

Responsibility of the school.-- If driver education and driver training in the secondary school can aid in materially reducing the property damage, injuries, and deaths resulting from the accidents caused by the lack of knowledge and skill of motor vehicle operators, it follows that schools offering driver education and driver training courses have a tremendous responsibility. Courses organized,

administered, and taught with less than the maximum of efficiency obtainable under existing local conditions will not be attaining to the highest possible degree the objectives desired.

This study was made and organized as an aid to the school administrator planning a program of driver education and driver training who, recognizing the school's responsibility, is striving sincerely to reach the optimum of desirable educational outcomes which can be expected from these courses.

Solution of the Problem

Research methods used.-- The method used in compiling the materials included in this study was to examine all books, texts, articles, theses, and papers relating to driver education and driver training which could be located through the card index files of the Boston University School of Education Library, the Boston Public Library, and the bibliographies contained in the books, texts, articles, theses, and papers themselves as they were found.

In addition, the Education Index, the Bibliography of Research Studies in Education, and the Review of Educational Research of the American Educational Research Association were examined and yielded additional titles of works bearing directly on the subject. Materials also were provided through bulletins of the American Automobile Association,

the Maine State Department of Education, the Maine State Police, the National Education Association, and the National Association of Secondary School Principals. Some of these were used as source materials only, although others are summarized and analyzed in the following chapters of this study.

Three types of materials.-- Materials of three distinct types were located and are included in this study under three separate chapters. Chapter II is a review of books citing the need for driver education and training and the results to be expected from such courses when included in the secondary school's program of studies. In Chapter III, analyses are made of actual courses of instruction now in use or developed for use in secondary schools. Chapter IV is made up of analyses of studies made of driver education and driver training as it now exists in the secondary school.

Selection of materials.-- Each book, text, article, thesis, and paper included in the study was selected for its value in contributing to the stated purpose in the opening paragraph of this chapter. Some of the materials studied were not included in this paper because of their lack of sufficient value or pertinence to the subject or to the duplication or inferior treatment of content.

Some of the materials used were included, not so much

for their direct treatment of the subject of driver education and driver training, as for their excellent presentation of the use of and need for these courses in an educative program that is cultural in the modern sense of the word.

CHAPTER II

REVIEW OF RELATED MATERIALS

Let Them Live [1]

Purpose of Holbrook's volume.-- Holbrook has three evident purposes in writing this book: (1) to shock the reader into an awareness of conditions existing throughout the country which place the lives of thousands of people in constant jeopardy, (2) to bring about a realization of the needlessness of these conditions, and (3) to point out remedial measures which can and should be taken to establish a reasonable standard of safety.

Scope of the work.-- Holbrook does not confine himself to the automobile as a cause of death. He is concerned also with the needless loss of life caused by accidents in factories, coal mines, steel mills, and on railroads and ship lines, and by fire. His work is a history of man's carelessness and refusal to recognize and remedy dangerous conditions until tragic accidents have finally brought him face to face with reality and forced him to bring about reforms.

Method of presentation.-- Holbrook's book is not a

1/ Stewart H. Holbrook, Let Them Live. The MacMillan Company. New York, 1938

scholarly treatise. It is a vitally written chronicle of man's arrogance, greed, ignorance, and disregard for his fellowman. By means of the accounts of tragic disasters he shows how man has paid for his disregard for the rules of safety. Each disaster has brought about improvements in conditions, but the basic carelessness underlying the cause of these tragedies has not changed.

Driver's responsibility for automobile accidents.-- A part of Let Them Live describes the growth of the automobile industry, and how the increasing use of the motor car has affected the people of the United States, particularly in regard to motor-vehicle accidents. In describing one of the earliest fatal automobile accidents recorded, Holbrook [1/] quotes the New York Times of December 27, 1900.

> A young woman was knocked down and fatally injured by an automobile vehicle while crossing Broadway on Christmas afternoon. She was a trained nurse, and therefore presumably intelligent, prudent, and active. The vehicle was moving rapidly, just how rapidly was not reported. The engineer in charge of it saw the young woman crossing the street and rang his gong in warning. Apparently, however, he did not abate the speed of the machine nor attempt to steer it out of the way. He considered his responsibility fully discharged by ringing the gong.

Holbrook goes on to point out that many motor-vehicle operators today hold to the point of view that their responsibility is ended when they have sounded their horns.

In 1937, Holbrook points out, 39,500 persons were

1/ Holbrook, op. cit., p. 122

killed in or by automobiles despite the various states having passed speed laws, set up highway driving codes, put traffic police to work, issued operators' licenses, and installed traffic lights.

Milwaukee's Safety Program.-- In showing what can be done to improve safety conditions on the streets and highways, the city of Milwaukee is used as an example. Milwaukee had one of the highest death rates due to automobile accidents of any city in the country. Suddenly recognizing its unenviable position it set up a traffic-survey committee with subcommittees to study streets, parking, lighting, schools, awards, driver schools, police, and judges.

One of the outcomes of this committee was the establishment of a truck driver's school. Holbrook,[1/] in describing this school states

> Instruction placed emphasis on safe driving and general conduct and demonstrated graphically by geometry, physics, and applied common sense that a really good truck driver should never have an accident of his own making.

This school gained such recognition through its graduates that it became almost impossible to get a truck-driving job in Milwaukee without a certificate from the school.

Other accident-prevention plans.-- Providence, Rhode Island also has cut the number of deaths due to automobile

1/ op. cit. p. 148

accidents by a community program based on civic pride backed by a well-planned publicity program.

Delaware has undertaken a definite state-wide program of driving safety. The Safety Commission of that state obtained twelve automobiles equipped for use as training cars and loans them to the thirty-three high schools of the state which have driver-training programs.

Implications for education.-- Holbrook [1] says:

> Education doesn't mean much unless it fits people to live in the society of which they are a part. Lots of people aren't living now because they or some of their fellow citizens hadn't learned how to live in a society based largely on the motor car.

This is a most cogent statement regarding the place of driver education and driver training in the educational program.

Analysis of the study.-- This book is important for its presentation of an attitude. Man has been careless of the earth's natural resources for centuries. He is rapidly destroying his water and his soil, both of which he must conserve in order to maintain life. In a machine age it is only a matter of decades until his food supply will be curtailed to such an extent that his standard of living must be immeasurably lowered.[2]

The disregard for human life has been as great as the

1/ op. cit., p. 155

2/ William Vogt, Road to Survival. William Sloane Associates, New York. 1948

neglect of natural resources. It is the clarity with which this fact is presented that makes Holbrook's book valuable in this study. The laissez-faire attitude is no more tenable in connection with conditions which induce accidents and a resultant loss of human life than it is in our modern economic philosophy.

A careful study of this volume makes clear that driver education and driver training in the secondary school must have as objectives, not only the acquiring of knowledge and the development of skills, but also the formation of an attitude of respect for human dignity and life.

Why We Have Automobile Accidents [1]

Purpose of the book.-- DeSilva's purpose [2] in this volume is to "outline the various phases of the highway safety problem, /and/ to assess their relative significance /in order to facilitate/ an understanding of many of the important but little-known facts about highway accidents", and to survey the methods of preventing accidents.

In the preface to this study, DeSilva points out [3] that

> Outside of a few specialized technical books, mostly on the engineering and enforcement phases of safety, some elementary instruction manuals, an assortment of undigested statistics, and a considerable

1/ Harry R. DeSilva, Why We Have Automobile Accidents. John Wiley & Sons, Inc. New York, 1942

2/ Ibid. p. ix

3/ Ibid. p. vii

amount of twaddle, there is a glaring deficiency of literature on either the theory or the practice of accident control.

Need for co-ordinated action.-- In supporting the need for scientific study of the accident problem and a well-planned program of driver training, DeSilva[1/] makes the following statement in his introduction:

> Although our present roads have not been designed primarily from the safety point of view, they can be driven on with impunity. The automobile also, in most respects a safe piece of machinery, can be used with a minimum of danger. It is the driver to whom we must impute responsibility for the hazards presented by these instruments. Left gloriously free, free to follow his own inclinations, be they good or bad, he has been driving much as he pleased. And year by year he has managed to kill and injure his fellow man by the hundreds of thousands. Why? Because of wilful human faults--selfishness, lack of his appreciation of his responsibilities to others, carelessness, wastefulness; because of lack of driving skill, because of unwillingness to conform to reasonable driving regulations. The driver is in need of a thorough overhauling. In place of his present casual education and lax control we need efficient public driver training and examining and effective and coordinated enforcement of suitable driver laws and regulations by all the state motor vehicle departments.
>
> It would be difficult to find another field of such practical importance to millions as the improvement and control of the habits of those using our highways, in which so little systematic research has been attempted, so few needed facts gathered, so little analysis made of them, and so little accomplished.

Three types of driver-training courses available.-- The three types of courses now available for training automobile drivers are: (1) the commercial driving courses, (2) the courses in driving conducted by schools and colleges

1/ Ibid. p. xiv

as a part of their program of studies, and (3) those driver training courses sponsored by governmental agencies or automobile clubs.

Driver courses in public schools.-- For the purpose of this study, only that portion of DeSilva's discussion concerning driver education and driver training in the schools, need be considered. Relative to driver instruction in the schools, DeSilva says [1]

> It is commonly accepted educational principle that the sooner you get the pupil the easier it is to mould his attitudes and the more lasting is the effect of your training. It follows, therefore, that the time to start safety training for beginners is early, as soon as the youngsters are old enough to be eligible to drive cars.

He points out that in most states, drivers must be from 14 to 16 years old before they may obtain a license to drive, and since a majority of the states require school attendance up to 16 years of age, it follows that an excellent time to begin the training of drivers is during high school.

Importance of the classroom teacher.-- DeSilva states that classroom instruction in highway safety by capable teachers nearly always has beneficial results. He emphasizes the importance of capable instruction by pointing out that preaching and moralizing on the part of the instructor nearly always has the opposite result from the one desired.

1/ op. cit., p. 285

Lessons, he says, should be factual, informative, and interesting.

DeSilva cites a check made in one state (but does not name the state) on the accident records of students who had taken safety courses in a number of high schools. Students who had had classroom instruction in driving under competent trained teachers had better-than-average accident records for their own age group. Where there had been incompetent instruction by improperly trained teachers the accident rate was higher than the average for all high school age drivers.

Method of training instructors at Pennsylvania State College.-- DeSilva [1] gives the following brief description of the method of training driving instructors in the first training course for teachers established at Pennsylvania State College in 1936 and conducted by Amos E. Neyhart:

> "A class of beginners in driving (preferably knowing absolutely nothing about driving) is solicited from a nearby community. In the classroom work, these beginners constitute the class to be taught. They sit in the front of the room. The student teachers sit in the back as observers. As they become accustomed to the work, they may be called upon to conduct the class in some units.
>
> "Road work with the teachers is begun at once. The instructor takes each teacher out individually and observes his driving. He points out objectionable practices and prescribes accordingly. The student then is expected to bring his own technic up to standard. A schedule of use of cars must be constructed so that the afternoon can be profitably used, if

1/ op. cit., p. 290

the class is held in the morning.

"By the middle of the second week the beginners' class will have covered the classroom work on 'How to Drive', written test and all, and the student teachers will have taken their road tests. If bad driving practices still persist or the tests are not passed, each individual takes all of them over again. The preparation and testing of the teachers mean unlimited work for the instructor but the results are worth the effort. Unless the work is divided between two instructors, this course alone is all that can be handled the session.

"The beginners are now ready for their road training and the student teachers are prepared to do their practice teaching with them. A requirement for passing the training course is that each student teacher successfully train at least one beginner (that means the passing of all the tests by his pupil). As the tests are far more difficult than any state examination for license, the beginner should be able at the conclusion of the college course to pass the state examination and get an operator's license. . . .

"When the beginners have completed the unit on the driver--his physical, mental, and emotional characteristics--they and the student teachers take a number of laboratory tests. . . .

"Deficiencies which might affect driving are discovered through the administration of individual tests and correction may be made then, or compensations built during the training period. While a totally deaf person will already have formed compensations which will function in driving, a partially deaf person may not even be aware of his deficiency until he is given a test. He will have to learn to compensate for his disability, e.g., by closer watching of other drivers' actions and greater precautions.

"If the student teacher in driver education goes through the entire series of road lessons himself, completes all the road tests, skillfully teaches at least one pupil to drive intelligently, he may well be expected to make good in one of the most difficult of training professions. If the instructor is certain the student lacks a pleasing and patient but firm personality or other desirable character attributes he should not encourage the student teacher to go on in the driver-training field."

<u>Road training</u>.-- According to DeSilva, there is no sub-

stitute for actual road training for students learning to drive automobiles safely. He compares road training to laboratory work in such classes as physics and chemistry, and shows how road training enables the student to practice the principles and theories learned in the classroom.

Cost of driver training.-- The cost of road training is $12 to $15 per pupil as against $2 to $3 per pupil for classroom instruction, although some road-training courses cost as little as $6 per pupil while others are reported as costing as much as $25 per pupil.

The question of who should pay for driver training is a problem which has not received a unanimous answer. Suggestions have been made that funds be included in the school budget to provide for this part of the school program. Other suggestions have been that some other governmental agency should finance the training or that pupils themselves should finance the training on an individual basis.

Results of driver training.-- There are few figures available to show the effect of driver training on automobile accidents. Amos E. Neyhart of Pennsylvania State College made a study of two groups of students of 250 pupils in each group. One group had taken the driver training course at Pennsylvania State College; the other group had had no formal instruction in driving. The drivers who had taken the driver training course had 5 accidents, in two of

which they were found to be at fault. There were no personal injuries. The untrained group had 13 accidents, in 9 of which they were at fault, and there were 11 personal injuries in these accidents.

Need for further research.-- DeSilva points out the need for further research to collect information the accident rate of driver training course graduates and the type of accidents graduates of these courses most commonly incur. Data of this type are needed, not only to show the effectiveness of driver training courses, but to aid in determining what teaching methods and content are most valuable.

Analysis of the study.-- This volume is a scientific study of automobile accidents and their causes. DeSilva has investigated each of the major factors contributing to accidents: the highway, the vehicle, and the driver. The results of his studies of these factors show that the driver is the greatest contributing factor to automobile accidents.

The driver factor has been broken down by DeSilva into elements of exposure, speed, skill, and safety-mindedness. These elements vary in degree in each driver, and the latter three, speed, skill, and safety-mindedness, are controllable by the education of the driver in the use of the vehicle on the highway.

The charts, graphs, and tables are well planned, and

the material is organized in a scientific and coherent manner. None of these charts, tables, or graphs are reproduced in this paper for the reason that they do not bear directly on that portion of his treatise which is of primary interest in this study. As DeSilva himself says, there has been very little research in the field of driver education and driver training of a scientific and objective nature.

Portions of this volume are devoted to motor vehicles and highways as factors in automobile accidents. Considerable more space is given to control through licensing, re-education of drivers, and control of licensed drivers.

Of the whole work only a relatively small part is given to driver education and driver training as a part of the program of the secondary school. That portion has been summarized in the preceding paragraphs and is worthwhile for the factual nature of the material presented.

Let's Teach Driving [1/]

Purpose of the publication.-- This publication is a guidebook for school administrators having as its stated purposes [2/]

To give school administrators, teachers, and

1/ Let's Teach Driving. National Commission on Safety Education of the National Education Association, Washington. 1947

2/ Ibid. p. 13

others a broad understanding of the need for teaching people how to drive automobiles, and to help them provide this instruction for the million high-school students under their guidance who begin driving each year.

Objectives of driver instruction in the high school.--The objectives of a driver training course in a secondary school as enumerated in this publication are of two types: (1) general, and (2) specific. They are quoted [1/] in full below.

"General objectives of the high school course in automobile driving are:

To reduce motor vehicle accidents to the minimum

To instil in as many young drivers as possible a sense of civic responsibility with regard to driving motor vehicles

To promote, through increased uniformity of instruction, a high standard of performance in motor vehicle driving

To enable every trainee to use motor vehicles with greater safety, efficiency, and pleasure.

"Specific objectives are:

To enable each student, while at the height of his desire to learn how to drive, to build attitudes leading to cooperative and responsible behavior on streets and highways

To enable each student to know, understand the reasons for, and apply in his own driving, the traffic laws of his community and state, and those common among many states

To provide a base of knowledge substantial enough to enable each student to develop sound driving and walking practices applicable under a variety of changing conditions in any location and in any season

To give students and understanding of their own and others' capabilities and limitations as drivers and pedestrians

To make each student aware of his own limitations and enable him to make suitable corrections and compensations for them

To enable each student to form those habits and

1/Ibid. p. 24

skills leading to efficient personal performance in driving and walking

To induce in students, thru proper learning experiences, the conviction that efficient driving and walking lead to more numerous and more satisfying experiences

To create in each student a special awareness of the mistakes made by untrained drivers and pedestrians, and enable him to apply defensive techniques to counteract the consequent dangers

To lead and enable each student to take an active interest in, and lend support to, community efforts to increase traffic efficiency thru channels of motor vehicle administration, education, law enforcement, engineering, and legislation

To enable any student to meet the basic driving requirements of a vocation involving the use of a motor vehicle."

Suggested course outline.-- The suggested outline for a course in driving is divided into two parts. The first part is for use in classroom work; the second part is for use in actual road training. The entire outline is presented here because of its value as a basic plan for any program of driver education and driver training.

Outline for classroom work.--[1/] (for the acquisition of desirable attitudes and mastery of specialized information)

1. Motor vehicle transportation in American life
   a. Growth of motor vehicle use in terms of number and types of vehicles, highway development, and mileage traveled
   b. Family use of automobiles for business, pleasure, and recreation
   c. Community use of motor vehicles for school transportation, police and fire protection, transportation of the sick and injured, and functions of government
   d. Commercial use of trucks, buses, and taxicabs

1/ Ibid. p. 27 - 31

e. Inefficiencies in motor vehicle use as reflected by number and severity of accidents (and resulting economic loss and human suffering) and by traffic delays and congestion

f. Buying, selling, fueling, servicing, and repairing motor vehicles

g. Control of motor vehicle use thru education, enforcement, engineering, legislation, licensing, and registration

2. Human capabilities and limitations for driving and walking

a. Importance of cooperative attitudes

b. Knowledge necessary for efficient driving

c. Emotions and the part they play in driving

d. Formation of good driving habits

e. Physical fitness as related to efficient driving

(1)Developing the kinesthetic sense

(2)Driver and pedestrian reaction times related to vehicle speeds

(3)Vision in relation to traffic movements

(4)Eye-hand and eye-foot coordination in driving

(5)Hearing, strength, and steadiness in relation to driving

(6)Relationship of permanent and temporary physical deficiencies to driving

f. Developing skill in driving

g. Use of tests to measure human abilities related to driving

3. Characteristics of streets and highways

a. Road surface as it affects starting, turning, stopping, and night visibility

b. Road widths, shoulders, lanes, channelizing islands, medial strips, and reflecting delineators

c. Curves, turns, hills, and intersections as they affect speed and sight distance

d. Types and functions of signs, signals, and road markings

e. Recent examples of highway design

4. Laws governing the use of motor vehicles, and penalties for non-observance

a. Motor vehicle registration and certificate of title

b. Motor vehicle operators' and chauffeurs' licenses

c. Financial responsibility for operation of motor vehicles

d. Regulation of traffic on streets and highways, including both state laws and city ordinances

e. Vehicle inspections

5. The motor vehicle as a mechanical device

a. Construction and principles of operation
b. Driving practices as they affect the life of vehicles
c. Preventative maintenance

6. Consumer values in automobile ownership, and operation
a. Selecting and buying a motor vehicle, especially a used car
b. Relationship of driving practices to conservation of gas, oil, tires, and engine
c. Functions of accessories
d. Relationships with city and state governments (titles, registrations, licenses, and inspections)
e. Avoiding personal liability thru sound driving, purchase of insurance, care in loaning car to others, refraining from transporting hitchhikers, and locking car when leaving it unattended
f. Buying fuel, oil, lubricants, anti-freeze, service, and repairs
g. Tools and equipment for owner maintenance
h. Reading road maps and planning trips

7. How to operate a motor vehicle
a. Fundamentals of driving
(1)Understanding the driving controls, safety devices, and gauges
(2)Differences in the driving controls among vehicles
(3)Starting the engine
(4)Starting the car, steering, shifting gears, and stopping
(5)Executing maneuvers of backing, turning around, starting on grades, and parking
b. Practices that mark the efficient driver
(1)Understanding the physical laws of motion as they affect vehicle operation
(2)Driving in accordance with changing road and traffic conditions
(3)Speed control
(4)Poise and smoothness at the wheel
(5)Showing consideration for other traffic
(6)Avoiding dangers from mistakes of others
(7)Parallel parking
c. Skills in handling difficult driving problems and in meeting emergencies
(1)Night driving
(2)Emergency parking on the highway
(3)Avoiding trouble in wet weather and winter driving
(4)Driving thru fog and smoke
(5)Avoiding skids in starting, turning, and

stopping on wet, icy, or sandy pavements
(6)Getting out of a skid
(7)Driving thru soft sand, mud, and snow
(8)Driving back onto pavement from shoulder
(9)Avoiding streetcar tracks and ruts
(10)Driving on rough roads

8. Relationship of drivers to non-motor vehicle traffic
   a. Pedestrian rights-of-way
   b. Reasons for pedestrian accidents
   c. Driver's responsibility for pedestrians
   d. Bicycle riding regulations
   e. Causes of bicycle accidents
   f. Driver's responsibility for bicyclists
   g. Driver's responsibility for livestock on highways
9. Driver examining and licensing
   a. Minimum legal driving ages
   b. Types of examinations given by various states
   c. The driver's license as a privilege granted by the state
   d. Suspension and revocation of drivers' licenses
10. Traffic accidents--national, state, and local
   a. Types of traffic accidents
   b. Extent and costs
   c. The accident pattern
      (1)Hour, season, and other factors
      (2)Locations
      (3)Weather and visibility conditions
   d. Causative factors
      (1)Driver errors
      (2)Mechanical defects in vehicles
      (3)Defects in streets and highways
11. Controls over vehicles, streets, highways, and their users
   a. Highway and traffic engineering
   b. Education
   c. Enforcement by the police and the courts
   d. Motor vehicle administration, including accident records
   e. Legislation
12. Outlook for the future
   a. Hazards in our present older cars
   b. Improvements in streets and highways
   c. Improvements in design of motor vehicles
   d. Increase in numbers of vehicles and drivers
   e. Possible legislative restrictions
   f. Responsibility of the individual driver

Road training (for developing desirable attitudes, habits, and skills in driving)

13. Learning to drive a motor vehicle

a. Understanding the driver's compartment
   (1)Safety equipment used by the driver
   (2)Controls used in driving
   (3)Learning to use the instrument panel
   (4)Checking vehicle and driver before starting
b. Starting and stopping the engine
c. Starting, steering, and stopping the car
d. Shifting gears
e. Using the brakes in stopping from different speeds
f. Using engine compression as a brake
g. Giving signals and turning corners
h. Executing maneuvers
   (1)Backing
   (2)Turning around
   (3)Starting on grades
   (4)Parking
i. Driving in urban traffic
j. Driving in rural areas
k. Driving on the open highway
l. Executing driving skill exercises
m. Tests in driving

Minimum standards.-- In a well planned program, definite standards must be established in order to assure meeting the stated objectives. Twelve major areas are named in which the establishment of definite standards are considered essential to a successful program of driver training. Specifically they are: (1) duties and responsibilities of the administrator, (2) qualifications of the teacher, (3) organization of classroom work, (4) organization of driving instruction, (5) scheduling of driving period, (6) establishment of a safe driving area, (7) driving on public streets, (8) driving in traffic, (9) text and reference materials, (10) size of classes, (11) testing, and (12) credit toward graduation.

Administration.-- The problem of administration is given particularly fine treatment. There are detailed discussions on fitting the program into the curriculum, providing equipment for classroom work and road training, selecting and training teachers, and school liability and insurance.

Detailed information on scheduling also is given, and nine sample schedules are shown. In addition, there are five general plans for setting up the program. In these sample schedules and general plans, school enrollment and class enrollments are taken into consideration.

The keeping of records also is discussed, and sample parent approval and pupil progress record forms are shown.

Community support.-- The chapter entitled "Gaining Community Support for Driving Instruction" develops a sound publicity program and shows how the school may utilize and work with public and private agencies in developing and maintaining driver education and driver training as a part of the school's program of studies.

Current programs.-- In the final chapter of this guidebook brief summarizations of driver education and driver training programs already in use in both large and small schools are presented. These summarizations are sufficiently detailed to provide the administrator with a working knowledge of how programs of driver instruction

are now being presented in secondary schools throughout the country.

Analysis of the book.-- This volume is extremely valuable as a guide-book for the administrator definitely planning the inclusion of driver instruction in his school's program. It is valuable also as a hand-book to which reference might well be made at frequent intervals after the driver training program has become established.

Written for the specific purpose of aiding the administrator in the solution of problems connected with the establishment and maintenance of a driver training program, it is both detailed and specific.

The plans and preparations necessary for building a successful course are based on the experiences of schools already having outstanding driver training programs. The sample schedules and record forms are examples of schedules and forms being used with marked success in schools of various sizes.

In its exposition of driver instruction as a part of the program of the secondary school, this volume adheres to sound educational principles, practices, and philosophy. Nothing is advocated which can be considered as divergent from the aims of modern education. The objectives, both general and specific, and the outline of the course are strongly indicative of the fact that desirable educational

outcomes in addition to the acquiring of specific knowledge and the development of definite skills are considered highly valuable in the driver instruction program. The growth of worthwhile attitudes and appreciations as a part of pupil progress are placed on a high level of importance throughout the course as developed in the guide-book.

Safety Education [1/]

Purpose of the study.-- The purposes of this study are to determine current practices in safety education in the elementary and secondary schools of the country and to present the findings of the study and some of the better programs as actually practiced in the schools. Chapter VI of the yearbook is a study of the needs of the secondary school in that part of safety education relating to the operation of the automobile, and a study of various programs of driver education and driver training now being used in selected schools.

Need for driver instruction.-- The Eighteenth Yearbook points out that there is much objective evidence that young drivers are in particular need of training in the use of the motor car. According to the Safety and Engineering Department of the American Automobile Association, drivers between the ages of 16 and 20 drove less than one-fifth

1/ American Association of School Administrators. Safety Education. Eighteenth Yearbook. Washington, D. C. 1940

as far per fatal accident as did drivers from 45 to 50. Drivers make their best records after many years of driving experience.

In addition to the reduction of fatal accidents and accidents of a less serious nature, there are other desirable outcomes from a course in driver education or driver training. The Eighteenth Yearbook [1] states that

> The case for driver education and driver training does not rest entirely upon the need for better driving of motor cars. There is much concomitant learning that takes place in such a program. Other habits are formed in the same manner as sound driving habits, and the knowledge of how they are formed may be applied to all fields of human endeavor. Courtesy on the highway is one sphere of activity tends to carry over into other spheres. The same can be said for respect for law and order, good sportsmanship, and all the other desirable attitudes which this course fosters.

Objectives of driver education and driver training.--The Eighteenth Yearbook lists eight major objectives to be attained in a sound driver instruction program. In order to present them without loss of or change in meaning, they are quoted here in full.[2]

> (1) To create in the pupil a realization of the effects of physical, mental, and emotional characteristics upon driver and pedestrian behavior in traffic situations
>
> (2) To actuate curiosity and exploration by the pupil concerning his own characteristics and concerning ways and means of correcting or compensating for such as are unfavorable to safety and efficiency in traffic movement

1/ Ibid. p. 134

2/ Op. cit. p. 135

(3) To establish in the pupil a sense of personal responsibility for the conservation of life and physical protection on the highway

(4) To develop an understanding and consequent application by the pupil of the sound principles and practices essential to traffic efficiency and safety

(5) To cause a recognition of the necessity for laws and regulations controlling traffic as fundamental to safety and efficiency, and to inspire in the pupil a self-disciplined adherence to them

(6) To inspire the pupil with a desire for active participation in the field of traffic safety, not only by personal observance of rules and practices, but also by support of needed programs in engineering, enforcement, education, and legislation

(7) To guide the pupil toward the acquisition of the scientific attitude concerning safety--interpreting local traffic conditions, analyzing accidents and hazards, critically evaluating existing traffic codes, making original contributions to the improvement of efficiency and the securing of safety

(8) To educate the pupil in essential special techniques, such as driving, by actual practice under guidance

Programs in use in selected schools.-- Two types of programs in driver education are shown in the Eighteenth Yearbook study. In one type driver education is not taught as a separate subject, but units in the study of the automobile and its use are included in other classroom subjects. The second type of driver education is a program of classroom instruction established as a subject-matter course for which credit comparable to other subject-matter classes is given.

Driver training programs are shown to vary also, but the variations are usually in detail rather than in type. A driver training program necessitates the use of an automobile and actual driving practice by the pupil under the

supervision of a trained instructor.

Analysis of the study.-- The Eighteenth Yearbook is an excellent report on safety and safety education in our schools. The chapter on driver education and driver training is the best single source of information available with respect to the specific detail of programs in use in typical schools offering some form of driver instruction. Several of these program plans are included in Chapter III of this paper, and therefore no mention of them individually has been made in this review of Chapter VI of the yearbook.

The need for driver instruction and the objectives of driver education and driver training as discussed in the yearbook are clear and specific. A careful study of Chapter VI should prove extremely valuable to the administrator desiring or definitely planning some form of driver instruction for his school. The yearbook should be useful also to administrators and driving instructors in schools where driver education or driver training or both is already established.

CHAPTER III

COURSES OF INSTRUCTION AND TEXTS IN USE IN SECONDARY SCHOOLS

Selection of Courses and Texts

State-wide programs.-- Several states have prepared suggested programs in driver instruction for use in the secondary schools of the respective states. Some of these have been planned by state or other universities; others have been developed by state departments of education.

The program developed by Boston University School of Education for use in Massachusetts high schools was one of the earlier state-wide projects in this field, and is included in this chapter because of this fact and also because of the completeness and general excellence of the work. Maine's program is included also because of its excellence and the fact that it is one of the more recently developed programs.

Oklahoma, West Virginia, Pennsylvania, Connecticut, Delaware, New York, Indiana, Ohio, and Wisconsin are other states which have developed unusually good driver education and training programs. However, the programs of these states were found to vary only slightly from the Boston University and State of Maine plans and are not included

in this study for that reason only.

Local programs.-- A number of local programs which varied from state programs were located, and examples of these are shown in subsequent pages of this chapter. Although they are given comparatively short treatment, they should serve to illustrate what has been done locally, and what can be done in any high school where administrative leadership and teacher initiative are present in a high degree.

Texts.-- Only two texts are reviewed in this chapter. These two, Man and the Motor Car,[1/] and Sportsmanlike Driving,[2/] are the most widely used and best known in the field of driver instruction and are the only texts in common use in secondary schools.

Driver Education and Training[3/]

A Tentative Course of Study for Senior High Schools

Purpose.-- The purpose of preparing a planned course of study in driver education and driver training by the school of education of Boston University was to make avail-

1/ Man and the Motor Car, Albert W. Whitney, Editor. National Conservation Bureau, Washington. 1939

2/ Sportsmanlike Driving Series, American Automobile Association, Washington, D.C. 1937

3/ Driver Education and Training--A Tentative Course of Study for Senior High Schools, Boston University School of Education, Boston. 1939

able to the secondary schools of Massachusetts materials and methods arranged in the form of a course of study which could be used as a standard by schools planning a program of driver instruction.

Preparation of the course.-- The course was prepared by a committee of high school teachers under the direction of Dr. F. R. Noffsinger and Professor Amos E. Neyhart under the sponsorship of the school of Education of Boston University, Dr. Jesse B. Davis, Dean. Cooperating organizations were the Boston Automobile Club, The American Automobile Association, and the Massachusetts Registry of Motor Vehicles.

In addition to the high-school teachers, traffic and police officials also served on the committee which had a total of nineteen members. The committee was split into four groups for more efficient study and work.

Administrative principles.-- The committee's first step was to establish a set of principles to be observed in the administration of the course. These principles, in outline form, state that:

(1) There should be a minimum of 2 periods per week of classroom instruction, and 5 periods per week are recommended for a semester course

(2) Credit toward graduation should be given

(3) The course should be offered in the semester in

which the most pupils attain driving age

(4) The final examination should be more rigid than any state examination

(5) The size of the class should be small enough to provide maximum pupil activity and still maintain economy

(6) Instructors should be teachers interested in driver education

(7) Instructors should be teachers with above average driving skill

(8) Teachers should be trained in content of the course and in methods of instructing

(9) If road training is included

(a) Dual control cars should be used

(b) Adequate insurance should be provided

(c) There should be a life-like environment

(d) The class should be divided into groups of 4 for road instruction

(e) Each pupil should spend 8 clock-hours behind the wheel and 32 clock-hours in the car

(f) No pupil should spend more than 30 minutes per day behind the wheel

(g) Driver instruction should be provided for each pupil at least twice per week

(h) The final examination should be more rigid than any state examination

(i) Teachers should be trained in the techniques of giving road instruction

Objectives.-- The objectives of the driver education and driver training program are: (1) to bring about a realization of the physical, mental, and emotional characteristics of drivers and pedestrians, a recognition of one's own deficiencies, and a knowledge of the steps to be taken to compensate for these deficiencies; (2) to provide for the establishment in the minds of the pupils of sound principles and practices fundamental to safety; (3) to provide for the establishment of habits and the perfecting of skills necessary for safe driving performance; and (4) to develop attitudes, appreciations, and understandings of safe, sane, and sportsmanlike use of highways and streets, to foster the acceptance of individual and group responsibility, and the development and improvement of traffic conditions through engineering, legislation, enforcement, and education.

Development of the program.-- The course of study as developed in the Boston University program follows closely the outline of the Sportsmanlike Driving Series [1/] described fully in this chapter. An organized series of problems accompanied by appropriate suggested activities has been developed for that part of the program which includes

1/ op. cit.

classroom instruction. A series of suggested units has been planned for use in road instruction and practice, and driving skill tests have been developed for use upon completion of the units.

Plan of instruction.-- The course of instruction is built on five units. These units are basically the same as those of the Sportsmanlike Driving Series [1] and bear the same titles: "The Driver", "Driver and Pedestrian Responsibilities", "Sound Driving Practices", "Society's Responsibilities", and "How to Drive". Each unit is subdivided into 4 major parts: (1) Purpose of the unit, (2) Problems of content and suggested activities, (3) Suggestions for evaluation, and (4) References.

Testing.-- In Part IV of the study, fifteen different devices for testing are described. These devices are of two types. One type is intended for use as pre-tests to be used prior to the beginning of actual road training. Tests of this type are designed to determine visual acuity, hearing efficiency, and various reaction times. The second type of test is for use after road training has been completed. Tests of this type are designed to record the proficiency of the pupil in various driving skills.

Some of these devices can be made in the school, and directions for constructing them are included in this part

1/ op. cit.

of the study. Other of the devices may be purchased, and the approximate cost of each such device is given. Credit for the conceiving of these devices is given to Professor Neyhart. Their development for classroom use is given to the committee of teachers.

Driving course and techniques.-- Suggestions are made for laying out a driving course for city driving. Such items as traffic, width of streets, and parking facilities are considered. A check list for city driving consisting of 271 items of driving technique also is included in this section.

Record forms.-- Sample record forms necessary for the administration of the program are included in the study. These include a cost sheet, a daily report for the car, individual pupil records, a daily report by the student driver to the supervisor, and a daily report on each beginning student by the teacher.

Analysis of the study.-- It is evident that much time and energy by a number of people were expended in compiling the materials and planning the course of study. Although it is somewhat cumbersome, it is complete, accurate, and based on sound educational principles. Very little has been written since this early attempt that is an improvement on it from the standpoint of theory. Were the materials to be condensed into less wordy form, it might very

well stand as a model for any course of study in a modern program of driver instruction.

A Syllabus of Instruction

in Driver Education and Training [1]

General objectives.-- The general objectives of the State of Maine program of driver instruction are stated clearly and concisely in the syllabus and are quoted here in full:[2]

> On the high school level, an effective, well-organized course in driving instruction must do all the following:
>
> 1. Lead pupils to a clear understanding of the physical, mental, and emotional characteristics that affect or limit their own capabilities and the capabilities of others as drivers or pedestrians, and to correct or compensate for any deficiencies.
> 2. Lead to attitudes of cooperation and personal responsibility in reducing traffic accidents to a minimum through high standards of skill in operating motor vehicles.
> 3. Lead to creating a body of citizens with the knowledge, sound habits, and skills that will bring greater safety, efficiency, and pleasure to driving or walking under varied conditions of locality or season.
> 4. Lead to developing a sense of civic responsibility with a knowledge and understanding of our traffic laws and an active interest in solving community traffic problems.

Administration.-- The suggested age group to whom the course should be offered consists of those pupils who are fifteen or who are about to become fifteen years old.

1/ A Syllabus of Instruction in Driver Education and Training, State of Maine, State Department of Education, Augusta, Maine. 1947

2/ Ibid. p. 6

Behind-the-wheel road instruction cannot be offered to pupils less than fifteen years of age, the legal age at which a person may operate a motor vehicle in Maine.

A two-part training program is outlined. The first part is classroom instruction, and the second part is behind-the-wheel training. The entire program consists of four units, and classroom instruction is outlined in all of them. The third unit contains actual techniques in learning to drive as well as classroom instruction. In no case may road training be given unless preceded by classroom work.

One-half unit of credit is allowed for the successful completion by the pupil of the entire program; one-fourth unit of credit may be given for the classroom work only. The Secretary of State issues a certificate exempting a pupil who has successfully completed the course from the oral examination required of applicants for a motor vehicle operator's license. Four plans for presenting the program in full or in part are described.

Scheduling is given careful consideration, and because the suggestions are concrete, and the syllabus is unusual in that it gives definite plans for scheduling the driver instruction course, the entire section is quoted below:[1/]

If classroom and road training are taught con-

1/ Ibid. p. 9

currently, a class might consist of 16 pupils meeting once a week as a class and other periods in groups of four for the behind-the-wheel activities. Those groups not actively engaged in the car in any given period would spend their time in preparing projects or carrying out activities assigned in the class periods. In scheduling a group in this way, all class and road activities are carried out in the same period meeting five times weekly. This makes for ease of scheduling. In no case should the class be so large that each student would not be able to have at least one period of road training per week. Another method in which classroom and road training are taught concurrently would be to have a class of 32 pupils meeting five periods per week per semester. Allowing one period per week for class work and the other four periods for road training, the class would need to be divided into eight groups of four each. All groups would meet as a class one period per week and as individual groups upon assignment the other periods of the week, necessitating more than two weeks for a complete round of road training for the entire class. The groups not scheduled for the car on any particular day should work on projects or research outlined by the instructor. Because it is desirable to have every student at the wheel at least once a week, it will be necessary to do some work outside the regular school hours. Still another method would be to schedule all the classroom instruction first for a period of one-half a semester, five periods per week. The road training could be done the second half of the semester or during study or activity hours. These plans lend themselves to a number of scheduling procedures. As long as the minimum requirements of time and study and activity are met, the method of scheduling may be very flexible.

Also under the heading of administration are sections on equipment, liability and insurance, the instructor and his qualifications, and the certification of teachers. Six qualifications are listed as being desirable in driver education and training courses: (1) Conviction in the need for safe driving, (2) Patience, (3) Initiative, (4)

Mechanical ability, (5) Training in driving instruction, and (6) A reputation as a safe driver and excellent eyesight and hearing. The teacher must be certified by the State Department of Education, and in order to receive certification, must not only be a qualified teacher by the state's regular standards for teachers, but must also have had a course or courses in driver education including behind-the-wheel road training. Such courses must be approved by the State Department of Education.

The instructional program.-- The program of instruction is based on a series of four units. These units like the units of most other driver education programs, follow rather closely the units as described in Man and the Motor Car and Sportsmanlike Driving.

Since Unit III is typical of the other units, and because it was developed for both classroom use and road training, a portion of it is presented here in order to show the manner in which the course has been planned.

Unit III [1/]

Learning the Technique of Driving

> The accident rate of youthful drivers is proportionately higher than that of any other age group. The acquired experience of older drivers appears to reduce the accident rate in their age group. The trial and error method by which this older generation acquired its knowledge has been too expensive in lives and property damage. Sound training of youth through

1/ Ibid. p. 26-28

courses in driver training can develop safe and skillful drivers at a far lower cost.

Necessary Objectives

1. An appreciation of the necessity of proper training in each step in learning to drive.
2. A knowledge of the mechanics of the automobile essential to sound driving and economical operation.
3. An understanding of the procedures, habits, and skills necessary to efficient operation of the automobile.
4. A feeling of responsibility in the proper care, maintenance, and use of the automobile.

[Nine basic references are listed for use in this unit]

Content

1. Learning to Drive
   How did most of the present drivers learn?
   What are the advantages of expert training and instruction over trial and error method?
   What are the successful practices and techniques in teaching driving?
2. Mechanics of the Automobile
   How does the engine develop power?
   How is energy transmitted to the wheels?
   What are the functions of the transmission, clutch, differential and brakes?
   What similarities exist between the driver's compartment and the aviator's cockpit?
3. Basic Driving Habits and Procedures
   What checks are made before starting the engine?
   Before setting the car in motion?
   How is the car put in motion? How to steer?
   How to shift gears? How to stop? How to develop correct habits from the beginning?
   How to back? Turn? Park? Start on grades?
   How to practice driving techniques in the city and in the country? How to keep out of trouble?
4. Conservation and Maintenance of the Vehicle
   What care is necessary for efficient operation and long life?
   What benefits are derived from keeping the car in good mechanical condition?
   What general preventive maintenance and

conservation precautions should be taken? How to gain maximum mileage from tires and fuel.

A number of problems and activities are listed.[1/] The following excerpts from the list will serve to indicate the nature of the problems and activities of this unit and illustrate the type of suggested pupil activities throughout the course.

> "Develop means of checking both driver and car before operation. Learn correct steps in starting the engine, starting the car, shifting, and stopping.
> "List steps necessary to start the car backward and to stop while backing. Diagram procedures for turning left and right hand corners.
> "Illustrate methods of turning the car around.
> "Diagram methods of crossing railway tracks and getting on pavement from road shoulders. Describe ways of avoiding skidding and methods of getting out of a skid.
> "Practice driving by the speedometer, holding even speeds. Strive for smooth acceleration and deceleration."

Analysis.-- The State of Maine syllabus outlines one of the better state programs of driver instruction. One reason for its high quality is that it is one of the most recent to be completed, and consequently those who planned it were able to profit from the defects and better characteristics of other state and local programs which preceded it.

Another probable reason for the excellence of the Maine program is the fact that many qualified persons took an active part in its development. Officials of the State

1/ Ibid. p. 27-28

Department of Education, the State Police, the State Highway Department, The University of Maine School of Education, the American Automobile Association, together with a high school principal, a superintendent of schools, and the Secretary of State combined their efforts in a cooperative enterprise.

The units are constructed more nearly to the pattern of the modern conception of a unit than in any other program found in this study. Each is planned so that a teacher unskilled in the use of the unit method of teaching can use it to the best of advantage, yet each unit allows for as much revision and individuality as is desired by a teacher who is trained in the construction of the unit and its use in teaching.

An Automobile Unit in English

Origin of the unit.-- Van Cott [1] reports the use of a unit on the automobile in a ninth grade English class in the Rome, New York junior high school. Apparently this study of the automobile in his class in English came about accidentally through a discussion of his own car. The members of the class showed interest in automobiles to such an extent that he developed what he calls a unit, during which letter writing, group discussions, and newspaper and magazine reading were stimulated.

1/ American Association of School Administrators. Safety Education. Eighteenth Yearbook. Washington, D.C. 1940 p. 137-138

The unit evolved from a discussion of automobiles to a study of safety, law observance, and care of the car. Pamphlets, bulletins, films, books, magazines, and newspapers were made use of during the course of the unit, and Van Cott reports that more interest was shown by the class during this unit than at any other time during the year.

The major topics of the unit as listed by Van Cott follow:

I. History of the automobile
II. Makes and characteristics of cars
III. Models of cars
IV. Location of the automobile industry
V. Price range for cars and factors determining it
VI. Licenses
    A. All types of vehicle and operators' licenses
    B. Laws and regulations
VII. Mechanism of the automobile
VIII. Accident prevention
    A. Causes and factors
    B. Statistics
    C. Safe drivers
    D. Precautionary measures
IX. Care of the automobile
X. Vocabulary enrichment

Analysis.-- Since the group studying the unit was an English class, it would seem that the primary objectives of the unit would be some form of achievement in the field of English rather than in the field of automobile safety. It is likely that this was true, and Van Cott does mention that progress was observed in the reading of newspaper and magazine articles and in letter writing. Enrichment of vocabulary is listed as a topic in the study of the unit. It would seem that this would be an outcom of the unit

rather than a topic in the unit.

The main reason for the inclusion of Van Cott's description of his unit on the automobile in this paper is to show what can be done in the field of driver instruction in subjects other than special driver education classes. Although most writers in the field seem to favor the social studies as the place to include driver instruction when formal classes in the subject are not a part of the school program, and many states place driver instruction in the physical education department, it is not unreasonable to suppose that excellent units in driver education could be constructed for use in science and mathematics classes as well as in the other academic subjects.

Van Cott's unit does not attempt to develop skills in driving, but it does bring about desirable attitudes toward and appreciation of law, legislators, enforcement officials, and engineering. Such outcomes, whether primary or incidental, are worthwhile.

Lane Technical High School Plan

Inception of the program.-- In 1936 the Lane Technical High School of Chicago was selected from among the high schools of that city as a laboratory for the study of a driver training program. The program was planned carefully

under the leadership of William H. Johnson, Superintendent of the Chicago schools. All pupils in the third and fourth years at Lane were required to take the course.

Structure of the course.-- The course is divided into three parts. The first part of the course consists of classroom instruction in the proper use of the highways and streets. Motion pictures, lantern slides, mimeographed materials, the City of Chicago Traffic Code Book, and the Illinois Summary of Traffic Laws are used in this preliminary instruction. Reasons why the rules of the road must be obeyed is a primary objective, and courtesy, kindness, and common sense are shown to be part of the necessary equipment of every driver.

The second part of the course involves the use of thirty dummy cars. Each pupil is seated in one of these and operates the controls in response to the directions of the instructor or in reaction to a film depicting various traffic situations shown on a screen before the class.

Each dummy car is equipped with a seat, steering wheel, gear shift lever, and clutch, brake, and accelerator pedals. These are electrically wired to a panel in front of the class, and operating a control automatically flashes a light on the panel. This system enables the instructor and pupils to see errors in the selection of the proper control in a given situation and also indicates the reaction

time of a pupil with a given control in a given situation.

When a pupil has mastered the operation of the dummy car to the satisfaction of the instructor, he moves into the third part of the course. Here he drives an automobile on a specially constructed course adjacent to the school. William A Sears, Supervisor of Safety of the Chicago board of education, describes the practice driving as follows:[1/]

> "Five boys are admitted to the track at one time. Each has a car to drive alone. It is probably the first time that some of them have been allowed to assume full responsibility in making and executing decisions without the interference of parent or teacher. Of course there is always an instructor on the grounds to check and advise the boy if necessary.
>
> "This track has standard city traffic lights at intersections, an incline, and other hazards and problems which may be met anywhere. The track is about 200 feet square, and a trip over the course is a little more than one-tenth of a mile.
>
> "The cars are inspected by the driver each time he drives. He notes the weather and temperature. He reports on the condition of the tires, fenders, bumpers, wheels, lights, oil and gas gauges, and ammeter. In almost two years of use we have had no accident at the track.
>
> "The average time spent by 400 students on the driving track was twelve clock hours, and the average mileage was 22.5 miles. The lowest time was three hours and the highest 19.5 hours. The shortest distance was 2.6 miles and the longest 51.9.
>
> "Up to and including last June 1939, when school closed, we had passed approximately 4200 students through the inside classroom. About 900 had completed both the inside and outside work. The difference in numbers between the two classes is due to the fact that we have only five cars to use outside. The cost was, as an average, only 75 cents per student for gas and oil.

1/ Op. cit. p. 166

> "It would be my estimate, from our experience, that the total cost per student of high school age including instructors, equipment, and other necessities would not exceed $3 by using our method. The cost would be three to four times this for people about thirty years of age or older."

According to Let's Teach Driving,[1] the number of cars had been increased from five in 1939 to fifteen in 1947. Due to the number of cars and the length of the roadway, most of the driving on the practice area is done in low gear, although students usually drive in high gear during the final period.

Analysis of the program.-- Apparently learning to drive safely on the streets of Chicago and the highways of Illinois is the sole function of the course of study. There is no evidence in the description of the course in either Let's Teach Driving or the Eighteenth Yearbook that the social and economic factors of the automobile are discussed at any time during the course.

The course seems to have an advantage over most driver training courses in that it makes use of dummy cars. Whether it is complete as a driver training program should be with its restricted driving track is questionable. It would seem that these simulated driving conditions could not prove as effective in teaching safe driving as would the meeting of the actual normal and abnormal traffic situations under the supervision of a trained instructor.

1/ Op. cit. p. 104

One advantage that the program has is the low cost. This, of course, could not be achieved if the cars were to be placed on public streets and highways. Gasoline and oil consumption would be higher and added insurance would have to be placed on the cars. Another factor which would increase the cost per pupil if the training program were to be carried out on public streets would be the increase in the number of instructors needed if the same number of boys were to be trained.

This program may be said to teach all the basic fundamentals of driving but lacks the enrichment of practice under supervision under actual street and highway traffic conditions.

The Pennsylvania State College Plan

Characteristics of the plan.-- The plan for training drivers developed by Neyhart at Pennsylvania State College is the most widely used in secondary schools today. Its outstanding characteristic is thoroughness of instruction. Neyhart's theory is that if pupils are to be good drivers, their habits and skills must be firmly fixed.

Dual control cars are always used under this plan. Pupils are in groups of four, one driving with the instructor beside him, while the others observe from the rear seat.

In order that road instruction be practical, a practice street which presents actual driving situations is used.

This street should be comparatively free from traffic. It is marked with cross walks, parallel and angle parking lines, and a center line. There should be some grades on the street, provisions for right and left turns, and the various types of traffic signs and lights.

After the pupils have attained proficiency on the practice street, they are required to drive (with the instructor) on other streets in traffic. Before they are given credit for the course, pupils must pass a battery of driving tests.

Outline of the course.-- The course is built on sixteen so-called units. It is noticeable that, although there is considerable variation in driver education (classroom instruction) among schools, most of the driver training (actual driver instruction) programs, with the exception of the Lane Technical plan, follow very closely Neyhart's program.

A bare outline of the program using the titles of the sixteen units is given below. Brief statements of explanation follow each title, but only the titles are quoted.

"I. The driver's compartment"

In this unit the pupil is acquainted with the various gauges and controls and learns how to use the safety devices.

n University
School of Education
Library

"II. How the automobile runs"

This unit is to acquaint the pupil with the mechanical parts of the car. He learns their names and how they operate.

"III. Check-up on the car and the driver"

The purpose of this unit is to stress the importance of checking such items as oil, water, tires, gasoline, and the safety controls of the car before starting the car. The driver is also expected to check himself to make sure he is prepared to drive.

"IV. Starting, steering, and stopping the car from low gear"

The pupil learns the motions necessary to start, steer, and stop the car in low gear.

"V. Shifting from low to second gear and stopping from second gear"

The pupil learns the motions needed to shift from low to second gear and to stop the car from second gear.

"VI. Shifting from second to high gear and stopping the car from high gear"

The motions needed to shift from second to high gear are learned.

"VII. Starting the car in low gear, then shifting to second gear and on to high gear within the prescribed time and distance, and stopping the car from high gear. Steering in a straight line with the left or right wheels on the line. Stopping the car on the 'nose'. Using the proper hand signal for stopping on the street or highway. Weaving between stanchions."

The purpose of this unit is to develop skill and judgement in shifting gears and in controlling the forward motion of the car.

> "VIII. Shifting from high to second gear, and shifting from second to low gear. Making emergency stops."

This unit teaches how and why to shift and develops skill in shifting gears and in making emergency stops.

> "IX. Backing, steering, and stopping in reverse gear. Placing the car in the 'nose' backward. Weaving between stanchions--backwards."

Teaches backing and steering the car backwards.

> "X. Making a right-hand turn and a left-hand turn and using the correct hand signals before the turn is made"

This unit is designed to develop skill in turning and signaling.

> "XI. Turning the car around"

To develop skill in turning and backing and in making U-turns.

> "XII. Parking in a short space between other cars and angle parking"

The pupil is introduced to the skills needed in the various types of parking and learns to develop these skills.

> "XIII. Starting and stopping on an up-grade, backing on an up-grade, parking on an up-grade and down-grade"

The skills necessary to starting, stopping, and parking on up- and down-grades are taught and developed.

"XIV. Open highway driving"

The pupil operates the car on the open highway and learns how to control the car under open highway conditions.

"XV. City driving"

The pupil develops the skills and judgement necessary to successful operation of an automobile in city traffic.

"XVI. Driving skill tests"

Severe tests of the pupil's driving skill are administered. Completion of these tests satisfactorily is necessary before the pupil can receive credit for the course.

Analysis of the plan.-- The number of secondary schools using this plan of teaching high school pupils how to drive automobiles safely indicates that it is considered the best plan of instruction yet devised from the standpoint of results obtained.

It is based on sound educational principles. At the beginning the pupil is made acquainted with the instruments he is going to use. Then he learns how to use them, first in simple situations, and then in more complex situations. At each step in his progress the pupil is confronted with a new problem which he can solve with the help of his instructor and by using the knowledge and skills gained in his earlier experiences.

Finally, this work is evaluated by the use of a battery of tests designed to test thoroughly his knowledge of

and skill in the operation of an automobile. These tests are more difficult than the various state examinations used to determine an applicant's qualifications for an operator's license. In some states, a certificate from the school using this system of instruction and testing stating that a pupil has met successfully the requirements of the driver training course of the school is accepted by the state as evidence of the ability of the applicant to meet the state's requirements, and a license is issued to the applicant without further examination.

Except that a comparatively small number of pupils can be given daily instruction in a program such as this, there seems to be little opportunity for adverse criticism of the plan. Even this criticism may not be valid, for in a large school where more pupils would need instruction than would be the case in small schools, additional cars and instructors could be utilized without increasing the cost per pupil. On the whole, it seems better to give thorough training to a relatively small number of pupils than to offer less complete training to a larger number. Inadequate training in any field never has proved to be worthwhile.

Man and the Motor Car [1]

Purpose of the book.-- Man and the Motor Car was

1/ Man and the Motor Car, Albert W. Whitney, Editor. National Conservation Bureau, Washington. 1939

written in response to a demand from high schools for a text for use in driver education classes. In 1936, at the time the book was first published, a few schools had established courses in driver instruction. Other schools wanted to include driver education in their programs, but little printed material was available. This volume was published to meet the need and also to furnish a text for adults who wanted expert guidance in learning to drive or who wished to improve their driving techniques.

Whitney explains that courses in the automobile should be included in the social studies curriculum if they are to be continued successfully as a permanent part of the program of studies of the secondary school. He believes that, in addition to learning how to operate automobiles safely and efficiently, pupils may gain occupational information in respect to highway engineering and traffic control. He points out that pupils will later become engineers, policemen, legislators, judges, mayors, governors, and voting citizens, and that properly conducted driver training classes in the secondary school may be helpful to them when they have assumed their places as adult citizens and workers in our democratic society.

Content.-- This volume is a text of 245 pages including a reference list, index, and appendix. It is divided into sixteen chapters each of which discusses one partic-

ular phase of driving or a related subject.

Chapter I is a brief history of the motor car and how it has affected society. Chapter II describes the parts of the automobile, their functions, and how they work.

Chapter III gives specific directions on how to drive. Starting, stopping, use of the brakes, parking under various conditions, recovering from skids, and the effects of speed on braking distance and collisions are typical of the material covered.

The next two chapters are concerned with the driver and discuss his nature, habits, psychology, attitudes, eyesight and vision, and reaction time. The dangers of carbon monoxide, the use of alcohol, and bad driving habits are given ample consideration as are one-arm driving, distractions, fatigue, drowsiness, and attitudes such as hurrying, competition, showing off, "hogging the road", and attitudes toward the law and its observance.

Highways and codes of the road are the principal points discussed in Chapters VI and VII. The art of driving under ordinary and special conditions and in traffic make up the content of Chapters VIII, IX, and X. The material in these chapters is specific and factual and covers nearly every conceivable situation. Chapter XI describes the best methods of car maintenance.

The balance of the text is of a social nature, dis-

cussing automobile accidents and how they can be prevented, the cost of accidents, liability of the owner and driver, insurance, pedestrian responsibility, and the responsibility of the driver to the pedestrian.

Analysis.-- This book meets the standards of a good text for driver instruction in that it is factual, accurate, detailed, specific, and does not attempt to moralize. The directions for performing the various operations are clear, concise, and illustrated with drawings, figures, or photographs.

The order in which the material is presented is logical. Necessary background material comes first, followed by the actual driving instructions. Generalizations of importance to the individual and to society as a whole are then drawn. This sequence not only provides a logical succession of ideas, but is calculated to maintain pupil interest.

The vocabulary and sentence structure is intended for pupils in the ninth, tenth, and eleventh grades, since the text is for use in a course recommended for pupils who are about to reach legal driving age. Although the legal driving age varies among the different states, sixteen is typical of the minimum age at which many of the states grant driving licenses. From the point of view of pupil understanding, the text is best suited to tenth grade pupils.

The type should be slightly larger, and the page make-up could be more attractive, but on the whole both type and format are satisfactory. The figures and sketches are clear and are excellent supplements to the reading material. In some cases they are of primary importance, and the printed matter becomes supplemental to the figure or sketch.

Although the book is complete and could be used as a single text in a course taught in the traditional manner, it would be even more valuable as one of the main references in a course taught through the medium of well-constructed units.

Sportsmanlike Driving [1]

Purpose of the book.-- Like Man and the Motor Car,[2] this book was written and published primarily for use as a text in schools offering driver instruction, but also for individuals who desire to learn how to drive correctly or improve their present driving.

The original publication was in book form and first appeared in 1937. Publication of a revision of the original book took place in 1947. At the same time a series of five pamphlets, each titled with the name of one of the

1/ Sportsmanlike Driving, American Automobile Association, Washington, D.C. 1947

2/ Op. cit.

five major topics of the original book appeared. For the purpose of this study, the 1947 revision of the original text was used.

Content.-- The 1947 single volume text is divided into four parts. Part I is called "The Driver and the Pedestrian" and consists of eight chapters. The first chapter discusses the automobile as a machine, the reasons underlying motor vehicle accidents, and the best way to learn to drive a car. Two chapters are devoted to the physical qualifications of the driver. Eyes and eyesight, physical fitness and general health, and disabilities are shown to be important factors in the operation of a car.

Chapter V is entitled "Reaction Time and the Driver". In this chapter, reaction time is explained thoroughly, and its meaning in terms of safe automobile driving is made clear. Simple and complex reaction times are connected with braking distance and the total stopping distance in such a way that a pupil can see that good driving is a matter of scientific training.

Part II consists of three chapters on the subject of sound driving practices. In the first of these three chapters, the traffic laws of nature, such as friction, centrifugal force, kinetic energy, and force of impact are defined and described. The results of violating these natural laws are shown clearly.

The second chapter of this section deals with the traffic laws made by man. Custom, legislation, the legal responsibility of drivers while in traffic, ownership liability and licensing, and traffic regulations concerning pedestrians and bicycle operation are the principal points discussed in this chapter. The final chapter in this part has to do with observance and enforcement of laws and regulations.

"How to Drive" is the title of Part III. This section is made up of eight chapters, each dealing with a particular part of the driving process.

Learning the function of each guage and control device in the driver's compartment comes first, followed by a study of the moving parts of the car. This is followed by a demonstration of actual driving by the instructor and then an actual trial drive by the pupil. Following this phase is the practice of maneuvers such as backing, turning corners, parking, and starting the car on grades.

Finally, the pupil is ready to drive alone. Then special instruction in driving on the open highway and in city traffic is given. Both of these driving conditions receive thorough and detailed treatment in the text.

Proper care of the car to insure long wear and safety is the subject of Part III. Here proper lubrication of the engine and chassis is described, and directions for caring

for tires, battery, radiator and other important parts of the automobile are given.

In Part IV, the improvement of the automobile, highway engineering for the motor age, and traffic management from the viewpoint of local conditions and legislation are discussed briefly.

Analysis.-- This text is, in the writers opinion, the best single volume for school use that has appeared to date. It is written in a style that is interesting and easily understandable to pupils in the lower and middle high school grades. The vocabulary is simple without sacrificing correct terminology and technical terms.

The format is excellent. The type is clear, and the size of the print makes reading less difficult than is the case with many texts. The book is well illustrated and has a sufficient number of well-constructed graphs and charts to clarify the text.

A course of driver instruction using Sportsmanlike Driving as a basic text or planned and taught by an instructor as a series of units incorporating the materials included in this text would be complete. Pupils in the class taught by a competent instructor using these materials would receive not only excellent instruction in the safe operation of the automobile, but would be likely to develop socially acceptable attitudes regarding respect

for traffic laws and regulations, the rights of others, whether walking or driving, and the problems of legislators and enforcement officials.

CHAPTER IV

RESULTS OF DRIVER INSTRUCTION IN SECONDARY SCHOOLS

Summary of Research to Date

Re-statement of the objectives of driver instruction.--The primary purpose of a course in driver instruction, particularly in an on-the-road, behind-the-wheel program, would seem to be the reduction of motor vehicle accidents and the resultant property damage and loss of life. Most of the authors whose works were reviewed in Chapter I of this study used the high accident rate among youthful automobile operators as a basis for their arguments that instruction and training in the use of the automobile should be a part of the program of studies of the secondary school. However, in only one case, Let's Teach Driving,[1] was this point made as a direct statement.[2] Here the first objective in the statement of general objectives was, "To reduce motor vehicle accidents to the minimum."

Other statements of the objectives of driver instruction have indicated safe operation of motor vehicles as being one of the goals of an instructional program in

1/ Op. cit.

2/ Ibid. p. 24

driving, but the development of civic and personal responsibility, attitudes of appeciation, and skills in operating cars, together with the acquiring of knowledge about the car and incidental learnings, make up the greater part of any list of the objectives of driver education and training.

It is obvious that knowledge of the automobile, a high degree of skill in its use, the proper appreciation of the rights of pedestrians and other drivers, and an attitude of respect for the laws and rules of the road and for enforcement officials would result in better and safer drivers and driving and would therefore bring about a decrease in motor vehicle accidents and the economic losses and personal suffering which accompany them. However, as far as could be found in this study, no tests have been developed to measure the results of driver instruction in terms of the stated objectives except for the measurement of the degree of skill in the operation of the automobile developed by the pupil and the ordinary pencil and paper tests used to measure knowledge acquired during the course.

Important research made.-- Three important research projects to determine the results of driver instruction in terms of the accident rate have been made. While none of these studies can be considered as conclusive, each of them point to a decrease in the accident rate of trained

drivers, and when all of them are taken together, the results indicate that a lowered accident rate may be expected among youthful drivers who have been trained in formal classes in driver instruction.

Einseman's findings.-- Under the directions of Dr. Herbert Walker of Pennsylvania State College, Richard S. Einseman, a graduate student, made a study of the accident records of 250 trained drivers and 250 untrained drivers. This study, made during the 1939 summer session, covered the three years 1936 - 1938 inclusive. The trained drivers had received their training at Pennsylvania State College, and each had a minimum of 20 clock-hours of classroom instruction and eight clock-hours of behind-the-wheel training.

Neyhart, reporting the study in Driver Training Reduces Accidents One Half,[1/] describes the method of securing the data as follows:

> The names and addresses of these trained drivers were sent to Col. Wilhelm of the Pennsylvania Motor Police, Harrisburg, Pennsylvania, to have their driving records checked for the three years 1936 - 1938, inclusive. The records of a group of 250 drivers drawn at random by Col. Wilhelm's department who had not received this special training in Driver Training Schools, but were of the same age group and approximately the same driving experience, were checked for the same period, 1936 - 1938, inclusive.

The results of this study have been included in

1/ Driver Training Reduces Accidents One Half. Traffic Engineering and Safety Department, American Automobile Association, Washington, D.C. 1945 p. 18

Chapter I of this paper as a part of the review of DeSilva's book.[1] However, the results as summarized by Neyhart[2] are important enough to be re-stated briefly in this section. Einseman found that (1) among the 250 untrained drivers there were 13 accidents during the three year period. Among the 250 trained drivers there were five accidents. (2) Of the 13 accidents among the untrained drivers, nine of the drivers were declared to be legally at fault. Of the five accidents among the trained drivers, two of the drivers were declared to be legally at fault. (3) A total of 11 persons were injured in the 13 accidents among the untrained drivers. No injuries resulted from the five accidents reported in the group of trained drivers.

Neyhart[3] concludes that

> The number of cases investigated are too few to establish any measure of prediction. However, there is every indication that definite training tends to lessen serious driving difficulties.
> . . . . As the driving records of several thousand individuals trained in these special courses are now available, an adequate research project is possible.

The Cleveland, Ohio study.-- The American Automobile Association in Driver Training Reduces Accidents One Half[4] reports the results of research on the accident rate among

1/ Op. cit.

2/ Ibid.

3/ Ibid.

4/ Op. cit.

1,880 trained drivers and 1,372 untrained drivers in the city of Cleveland all of whom were high school graduates and had obtained driver's licenses. The study was made by the Association with the cooperation of the Cleveland Board of Education, the Ohio Motor Vehicle Department, the Cleveland Police Department, and the Cleveland Automobile Club.

A list was made of all students graduating from the driver training classes of the Cleveland high schools in June, 1939, January, 1940, June, 1940, January 1941, and June 1941. A second list was made of approximately the same number of students without driver training graduating from the same high schools at the same time.

These names were sent to the Ohio Motor Vehicle Department for answers to the following questions:[1/]

1. Did the student get a driving license?
2. If he did get a license, when was it issued?
3. Did the student have any convictions recorded against him for traffic law violations?
4. If there were such convictions, what was their nature and when did they occur?

All of the names were also checked with the Cleveland Police Department to record any accidents and the nature of such accidents.

It was found that the accident record among the women drivers, both trained and untrained, was so slight that the inclusion of their records in the final results of the

1/ Ibid. p. 7

study would open to question a comparison of trained and untrained drivers unless exactly the same number of women drivers were included in each group. Hence, separate studies of men and women drivers were made.

Of the 1,273 trained men drivers studied, 48, or 3.77 per cent were involved in accidents. Of the 1,151 untrained drivers studied, 76, or 6.60 per cent were involved in accidents. The accident rate among the trained drivers was 42.8 per cent less than among the untrained drivers.

The 48 trained men drivers involved in accidents had a total of 20,787 man months since graduation for an average of 2.31 accidents per 1,000 months. The 76 untrained drivers having accidents had a total of 19,850 man months since graduation for an average of 3.84 accidents per 1,000 months. The number of accidents per month was 39.6 per cent less among the trained drivers.

The total months licensed since graduation of the trained men was 17,166 and the number of accidents per 1,000 months of licensed driving was 2.80. The total months licensed driving since graduation of the untrained men was 14,164, and the number of accidents per 1,000 months of licensed driving was 5.38. The number of accidents per 1,000 months of licensed driving was 47.9 per cent less among the trained drivers than in the group of untrained drivers.

The report states [1] that

> All of the schools [in which the trained drivers received their training] used the Sportsmanlike Driving text pamphlet 'How to Drive' and most of them used 'The Driver' and 'Sound Driving Practices' in addition. Classroom instruction totaled 36 hours.
>
> Road training consisted of six clock-hours of behind-the-wheel driving and eighteen hours of observation--that is, riding in the car while the teacher was giving instructions to a student behind the wheel. All cars were equipped with dual brake and clutch pedals. The teachers selected to give the training were given a two weeks' course on driving training methods.

This study appears to have been made according to the rules of scientific research. All factors were studied carefully, and when they appeared to affect the results were taken into consideration either by setting up adequate controls or by eliminating the factor in question.

The number of cases included in the study was sufficiently large to make the results appear to be highly significant. In the case of the number of men involved in accidents, the difference between the two groups was 2.83 per cent plus or minus .06 per cent with P equal to .001. It can be assumed therefore, that driver training as administered in the Cleveland schools materially reduces the accident rate among those men who have received such training.

The Delaware study.-- The Delaware State Motor Vehicle Department recently completed a study to determine the results of the state-wide driver instruction program in

the Delaware high schools. A complete report on this study was not available for this paper. However, the following information, as reported by Hayden,[1/] is included here as further evidence of the results to be expected from a driver education and training program:

> Eight hundred trained and 800 non-trained drivers of the same age group were selected at random from the files of the state license bureau. Their records showed that 96 per cent of the non-trained drivers had experienced arrests, accidents, or warnings since receiving their licenses. Only 13 per cent of the school-trained drivers had had similar experiences.

Conclusions

Valid conclusions drawn from this study.-- From this study a number of valid conclusions may be drawn:

1. The automobile accident rate is higher than it should be. Since the automobile, as a result of improved engineering, has become reasonably safe to operate, and since highways and streets have been improved from the standpoint of safety, it follows that a large proportion of automobile accidents are caused by the driver.

2. Automobile accidents caused by the driver are due to (a) the operator's lack of knowledge of the machine he is using or of the rules and laws of man and of nature which govern its use, (b) to his lack of skill in operating the machine, or (c) to his lack of a properly developed

1/ Mary M. Hayden, "Young Drivers Can be Safe Drivers" N.E.A.Journal, (March, 1949) 38: 184-185

attitude of personal and civic responsibility and respect for the rights of other drivers and pedestrians.

3. The accident rate is highest among youthful drivers.

4. To bring about a decrease in the accident rate of young drivers, education regarding the automobile, its operation, and the rules governing its use, and the development of attitudes of responsibility and respect for the rights of others are needed.

5. Since a majority of boys and girls are in school at the time they reach legal driving age, and since the school's job is to prepare youth for living in the society of which it is a part, it should be one of the functions of the school to educate and train its pupils in the use of the automobile and to develop in them the attitudes necessary for safe driving.

6. An increasing number of individual high schools and state departments of education believe that driver education and driver training are worthwhile additions to the secondary school's program of studies, and such courses are being included in the schools' programs at a steadily increasing rate.

7. All evidence from research so far attempted points to the fact that such education and training will materially reduce the automobile accident rate among youthful drivers.

8. The evidence is not yet sufficient to prove conclusively that such education and training is successful in terms of a reduced automobile accident rate among young drivers, or to what degree it may be expected to prove successful, or which methods of instruction may be expected to produce the best results.

9. Further research is needed in order to determine, in terms of the stated objectives of driver education and driver training courses, the content and method of instructing most likely to prove efficient in a program of driver instruction.

Bibliography

American Association of School Administrators. Safety Education. Eighteenth Yearbook. Washington, D.C.: the Association, a department of the National Education Association, 1940. 544 p.

A source book on safety education. Chapter VI, "Driver Education and Driver Training in the Secondary School", p. 133 - 166, contains outlines and descriptions of state and local programs of driver instruction.

American Automobile Association. Bibliography of Traffic Safety Films. Revised edition. Washington, D.C.: the Association, 1945. 23 p.

A list of motion picture and sound-slide films for elementary, high school, and adult use.

American Automobile Association. Driver Education and Training Manual. Revised edition. Washington, D.C.: the Association, 1945. 176 p.

A manual, based on Sportsmanlike Driving, for the use of secondary school teachers of driving. Contains material for effective teaching of driving, including units for classroom instruction and road training, tests, and supplementary materials.

American Automobile Association. Driver Testing and Training Devices. Washington, D.C.: the Association. 1946. 11 p.

A description of fifteen driver tests, and information as to how they may be obtained through loan or purchase.

American Automobile Association. Driver Training Reduces Traffic Accidents One Half. Washington, D.C.: the Association, 1945. 18 p.

A report of the study made of the driving records of trained and untrained drivers in the city of Cleveland, Ohio. Also a brief report of the study made by Pennsylvania State College.

American Automobile Association. Plans for Building Driver Tests. Washington, D.C.: the Association. 1945. 27 p.

Blueprints for building eight driver tests. Gives materials needed, method of construction, use, operation, and method of scoring.

American Automobile Association. Sportsmanlike Driving. Revised edition. Washington, D.C. 1947. 512 p.

A text for use in driver instruction courses.

American Automobile Association. Training Drivers Through High School and Home Cooperation. Washington, D.C.: the Association. 1946 34 p.

A description of a program where driver education is taught in the school and road training is given by parents or other home instructors. Instructor's manual for presenting such a course.

Boston University, School of Education. Driver Education and Training - A Tentative Course of Study for Senior High Schools. Boston. the University. 1939 Mimeo.

A tentative program of driver instruction for Massachusetts senior high schools.

Connecticut State Bureau of Education, Bureau of Field Service. Intelligent Driving. An Outline for Teaching a Course in Automobile Safety and Driving for High Schools. Hartford, Conn. : Bureau of Education. 1936. 32 p.

Outline for course in driver instruction. Contains numerous diagrams for various road training testing devices.

Delaware Department of Public Instruction, State Highway Department, and Delaware Safety Council. Final Report on Student Driver Training Program. Dover, Del.: Department of Public Instruction. 1946. 5 p. Mimeo.

Report of driver instruction in 23 Delaware high schools for year 1945-1946.

DeSilva, Harry R., Why We Have Automobile Accidents. New York: John Wiley and Sons, 1942. 394 p.

A scientific study of the causes of automobile accidents.

Floherty, John B., Youth at the Wheel. Philadelphia: J. B. Lippincott Co. 1937. 168 p.

A reference book for young drivers on safe driving.

Hamilton, J. R., and Louis L. Thurstone, Safe Driving. New York: Doubleday, Doran, and Co., 1937. 74 p.

Describes human limitations, mainly visual, in automobile driving on highways, in traffic, and at night. Based on experimental research on the subject.

Hayden, Mary M., "Young Drivers Can Be Safe Drivers" National Education Association Journal (March 1949) 38: 184 - 185

Holbrook, Stewart H., Let Them Live. New York: The MacMillan Company. 1938

Discusses man's attitude of carelessness and shows what can be done to prevent accidents.

Indiana Department of Public Instruction. Driver Education and Training: A Syllabus for Administrators and Teachers. Indianapolis, Ind.: the Department. 1946 12 p. Mimeo.

Brief outlines for class work and road training. Statement of objectives and administrative considerations.

Kramer, Milton D., Behind the Wheel. New York: New York University, Center for Safety Education, 1944. 38 p.

A guide of seven step-by-step lessons with aids to the instructor intended to help secondary school teachers of driver instruction.

Maine State Department of Education. A Syllabus of Instruction in Driver Education and Training. Augusta, Maine: the Department. 1947. 40 p.

Outline of suggested course of study for driver education and on-the-road training. Contains state regulations, administrative aids, and references.

Massachusetts Department of Public Works, Registry of Motor Vehicles. Instructional Material in Pre-Driver Education for High School Teachers of Massachusetts.

Boston: Registry of Motor Vehicles, 1946. 16 p.

Outlines eleven units in driving. Contains bibliography and selected visual aids. For high school teachers of driving.

National Education Association, National Commission on Safety Education. Let's Teach Driving. Washington, D.C.: the Association. 1947. 135 p.

An administrative guidebook. Aids for the administrator in establishing and maintaining a program of driver instruction. Complete information on driver education from the viewpoint of the secondary school administrator.

New York State Education Department, Division of Secondary Education, Bureau of Curriculum Development. Driver Education and Training. Albany: University of the State of New York Press. 1946. 36 p.

Syllabus for a secondary school course in driving.

New York University, Division of General Education, Center for Safety Education. Driver Education in the High School Curriculum. Safety Education Series, No, 3. New York: the University. n.d. 8 p.

Administrative aspects of driver education in secondary schools.

New York University, Division of General Education, Center for Safety Education, and National Conservation Bureau. Driver Testing Devices for Use in Driver Education and Training. New York: the University. n.d. 11 p.

Neyhart, Amos E., Road Test in Traffic. Washington, D.C.: American Automobile Association, and State College, Pa.: Pennsylvania State College. 1945. 2 p.

A thirty minute road test of two parts. Designed for selecting, testing, and training motor vehicle operators.

Neyhart, Amos E., and F.R.Noffsinger. Standardized Tests. Sportsmanlike Driving Series. Washington, D.C.: American Automobile Association. 1937-1943. 6 p. each.

Standardized tests for use with Sportsmanlike Driving.

Ohio Department of Education, and Department of Highways. Driver Education and Training in the Public Schools of Ohio. Columbus, Ohio: The Heer Printing Co. 1944. 92 p.

Teachers manual. Outline minimum standards and subject matter of course in driving.

West Virginia Department of Education, Department of Public Safety, and State Road Commission. A Course of Study in Driver Education for West Virginia Secondary Schools. Charleston, W. Va: Department of Education. 1945. 38 p.

Outlines of eleven units of driver instruction, each including objectives, content, activities, appraisals, and references. Bibliography of texts, references, testing devices, and visual aids.

Whitney, Albert W., editor. Man and the Motor Car. Washington, D.C.: National Conservation Bureau. 1939. 287 p.

A text for use in high school driver instruction courses.

Wisconsin Department of Public Instruction, and Motor Vehicle Department. 1946 Driver Education Procedure. Madison, Wis.: Department of Public Instruction. 1946. 24 P.

A manual for teachers and administrators. Gives history of driving instruction in Wisconsin, directions for organizing courses and selecting content, selecting instructors. Describes home supervision plan for road training, and lists state requirements.

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